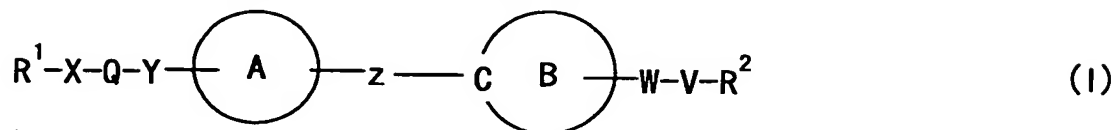


Claims

1. A compound represented by the formula:



5 wherein

R^1 is an optionally substituted 5-membered heterocyclic group;

X, Y and V

10 are the same or different and each is a bond, an oxygen atom, a sulfur atom, -CO-, -CS-, -SO-, -SO₂-, -CR³(OR⁴)-, -NR⁵-, -CONR⁶-, -NR⁶CO-, -CSNR⁶-, -NR⁶CS- or -CONR⁶NR⁷- (R³ is a hydrogen atom or an optionally substituted hydrocarbon group, R⁴ is a hydrogen atom or a hydroxyl-protecting group, R⁵ is a hydrogen atom, an optionally substituted hydrocarbon group or an amino-protecting group, and R⁶ and R⁷ are the same or different and each is a hydrogen atom or an optionally substituted hydrocarbon group);

20 Q is a divalent hydrocarbon group having 1 to 20 carbon atoms;

ring A is an aromatic ring optionally further having 1 to 3 substituents;

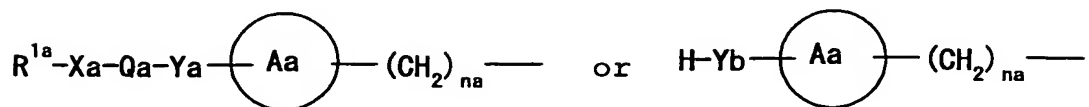
25 Z is -(CH₂)_n-Z¹- or -Z¹-(CH₂)_n- (n is an integer of 0 to 8 and Z¹ is a bond, an oxygen atom, a sulfur atom, -CO-, -CS-, -SO-, -SO₂-, -NR⁸-, -CONR⁸-, -NR⁸CO-, -CSNR⁸- or -NR⁸CS- (R⁸ is a hydrogen atom or an optionally substituted hydrocarbon group));

30 ring B is a nitrogen-containing heterocycle optionally further having 1 to 3 substituents;

W is a bond or a divalent hydrocarbon group having 1 to 20 carbon atoms; and

R^2 is a hydrogen atom, a cyano group, $-PO(OR^9)(OR^{10})$
 (R^9 and R^{10} are the same or different and each is a
 hydrogen atom or an optionally substituted
 hydrocarbon group, or R^9 and R^{10} are optionally
 5 bonded to form an optionally substituted ring), $-$
 COR^{11} [R^{11} is a hydrogen atom, an optionally
 substituted hydrocarbon group, an optionally
 substituted heterocyclic group, $-OR^{12}$ (R^{12} is a
 hydrogen atom or an optionally substituted
 10 hydrocarbon group) or $-NR^{13}R^{14}$ (R^{13} and R^{14} are the
 same or different and each is a hydrogen atom, an
 optionally substituted hydrocarbon group, an
 optionally substituted heterocyclic group, an
 optionally substituted acyl group or an optionally
 15 substituted hydroxy group, or R^{13} and R^{14} are
 optionally bonded to form an optionally
 substituted ring)], an optionally substituted
 hydrocarbon group, or an optionally substituted
 heterocyclic group,
 20 provided that
 1) $-W-V-R^2$ is not $-Wa-(C=O)-R^a$ [Wa is a saturated
 divalent hydrocarbon group having 1 to 20 carbon
 atoms and R^a is $-OR^b$ (R^b is a hydrogen atom or an
 optionally substituted hydrocarbon group) or $-NR^cR^d$
 25 (R^c and R^d are the same or different and each is a
 hydrogen atom, an optionally substituted
 hydrocarbon group, an optionally substituted
 heterocyclic group or an acyl group, and R^c and R^d
 are optionally bonded to form an optionally
 30 substituted ring together with the adjacent
 nitrogen atom)],
 2) ring A and ring B do not have a substituent
 represented by the formula: $-Wa-(C=O)-R^a$ (Wa and R^a
 are as defined above),

3) ring B does not have, on a ring-constituting N atom,
a substituent represented by the formula:



wherein

5 R^{1a} is an optionally substituted hydrocarbon group
or an optionally substituted heterocyclic
group;

Xa and Ya

are the same or different and each is a bond,
10 an oxygen atom, a sulfur atom, -CO-, -CS-, -SO-,
-SO₂-, -CR^{3a}(OR^{4a})-, -NR^{5a}-, -CONR^{6a}- or -NR^{6a}CO-
(R^{3a} is a hydrogen atom or an optionally
substituted hydrocarbon group, R^{4a} is a hydrogen
atom or a hydroxyl-protecting group, R^{5a} is a
15 hydrogen atom, an optionally substituted
hydrocarbon group or an amino-protecting group,
R^{6a} is a hydrogen atom or an optionally
substituted hydrocarbon group);

20 Qa is a divalent hydrocarbon group having 1 to 20
carbon atoms;

ring Aa is an aromatic ring optionally further having
1 to 3 substituents;

na is an integer of 1 to 8; and

25 Yb is an oxygen atom, a sulfur atom or -NR^{6a}- (R^{6a} is
as defined above),

4) -X-Q-Y- is not -(CH₂)_{na}- (na is an integer of 1 to 8),

5) when the nitrogen-containing heterocycle represented
by ring B is a pyridine ring, the ring B does not
have a further substituent, W is a divalent
30 hydrocarbon group having 1 to 20 carbon atoms, V
is a bond and R² is -PO(OR⁹)(OR¹⁰) or an optionally
substituted heterocyclic group,

6) when R¹ has a substituent represented by the formula:
-Wa-(C=O)-R^a (Wa and R^a are as defined above), W is
a divalent hydrocarbon group having 1 to 20 carbon
atoms, V is a bond and R² is -PO(OR⁹)(OR¹⁰) or an
optionally substituted heterocyclic group,

except

5- {2- [4- (5-methyl-2-phenyl-1,3-oxazol-4-
yl)methoxyphenyl]ethyl}-4-methoxymethoxymethyl-2-phenyl-
1,3-oxazole;

10 (5- {2- [4- (5-methyl-2-phenyl-1,3-oxazol-4-
yl)methoxyphenyl]ethyl}-2-phenyl-1,3-oxazol-4-
yl)methanol;

(5- {2- [4- (5-methyl-2-phenyl-1,3-oxazol-4-
yl)methoxyphenyl]ethyl}-2-phenyl-1,3-oxazol-4-

15 yl)acetonitrile;

ethyl 2-ethoxycarbonyl-3- (5- {2- [4- (5-methyl-2-phenyl-
1,3-oxazol-4-yl)methoxyphenyl]ethyl}-2-phenyl-1,3-
oxazol-4-yl)propionate;

20 methyl 3- (4- { [2- (2-furyl)-5-methyl-1,3-oxazol-4-
ylmethoxy]-3-methoxybenzyl}oxy)-1-phenyl-1H-pyrazole-5-
carboxylate;

[3- (4- { [2- (2-furyl)-5-methyl-1,3-oxazol-4-ylmethoxy]-3-
methoxybenzyl}oxy)-1-phenyl-1H-pyrazol-5-yl]methanol;

25 3- (4- { [2- (2-furyl)-5-methyl-1,3-oxazol-4-ylmethoxy]-3-
methoxybenzyl}oxy)-1-phenyl-1H-pyrazole-5-carbaldehyde;

and

[3- (4- { [2- (2-furyl)-5-methyl-1,3-oxazol-4-ylmethoxy]-3-
methoxybenzyl}oxy)-1-phenyl-1H-pyrazol-5-yl]acetonitrile,
or a salt thereof.

30

2. The compound of claim 1, wherein the 5-membered
heterocyclic group for R¹ is a 5-membered aromatic
heterocyclic group.

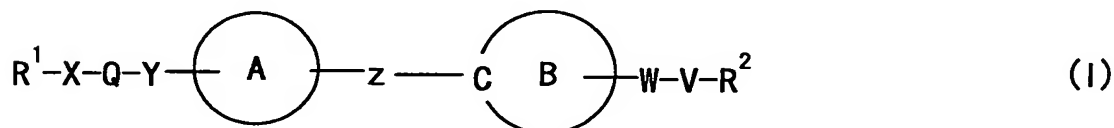
3. The compound of claim 2, wherein the 5-membered aromatic heterocyclic group is oxazolyl, thiazolyl or triazolyl.
- 5 4. The compound of claim 1, wherein X is a bond.
5. The compound of claim 1, wherein Q is a C₁₋₆ alkylene or a C₂₋₆ alkenylene.
- 10 6. The compound of claim 1, wherein Y is an oxygen atom.
7. The compound of claim 1, wherein the nitrogen-containing heterocycle represented by ring B is a pyrazole ring, an oxazole ring or a thiazole ring.
- 15 8. The compound of claim 1, wherein the substituent that ring B may further have is a hydrocarbon group.
9. The compound of claim 8, wherein the hydrocarbon
- 20 group is a C₁₋₁₀ alkyl group, a C₇₋₁₃ aralkyl group or a C₆₋₁₄ aryl group.
10. The compound of claim 1, wherein V is a bond.
- 25 11. The compound of claim 1, wherein R² is -PO(OR⁹)(OR¹⁰) (R⁹ and R¹⁰ are the same or different and each is a hydrogen atom or an optionally substituted hydrocarbon group, or R⁹ and R¹⁰ are optionally bonded to form an optionally substituted ring) or an optionally
- 30 substituted heterocyclic group.
12. The compound of claim 1, wherein R² is an optionally substituted heterocyclic group.

13. The compound of claim 1; wherein the aromatic ring represented by ring A is a benzene ring.

14. The compound of claim 1, wherein Z^1 is an oxygen atom.

15. The compound of claim 1, wherein W is a C_{1-6} alkylene or a C_{2-6} alkenylene; V is a bond; and R^2 is $-PO(OR^9)(OR^{10})$ (R^9 and R^{10} are the same or different and each is a hydrogen atom or an optionally substituted hydrocarbon group, or R^9 and R^{10} are optionally bonded to form an optionally substituted ring) or an optionally substituted heterocyclic group.

16. A pharmaceutical composition comprising the compound represented by the formula:



wherein

R^1 is an optionally substituted 5-membered heterocyclic group;

X, Y and V

are the same or different and each is a bond, an oxygen atom, a sulfur atom, $-CO-$, $-CS-$, $-SO-$, $-SO_2-$, $-CR^3(OR^4)-$, $-NR^5-$, $-CONR^6-$, $-NR^6CO-$, $-CSNR^6-$, $-NR^6CS-$ or $-CONR^6NR^7-$ (R^3 is a hydrogen atom or an optionally substituted hydrocarbon group, R^4 is a hydrogen atom or a hydroxyl-protecting group, R^5 is a hydrogen atom, an optionally substituted hydrocarbon group or an amino-protecting group, and R^6 and R^7 are the same or different and each is a hydrogen atom or an optionally substituted hydrocarbon group);

Q is a divalent hydrocarbon group having 1 to 20 carbon atoms;

ring A is an aromatic ring optionally further having 1 to 3 substituents;

5 Z is $-(CH_2)_n-Z^1-$ or $-Z^1-(CH_2)_n-$ (n is an integer of 0 to 8 and Z^1 is a bond, an oxygen atom, a sulfur atom, $-CO-$, $-CS-$, $-SO-$, $-SO_2-$, $-NR^8-$, $-CONR^8-$, $-NR^8CO-$, $-CSNR^8-$ or $-NR^8CS-$ (R^8 is a hydrogen atom or an optionally substituted hydrocarbon group));

10 ring B is a nitrogen-containing heterocycle optionally further having 1 to 3 substituents;

W is a bond or a divalent hydrocarbon group having 1 to 20 carbon atoms; and

R² is a hydrogen atom, a cyano group, $-PO(OR^9)(OR^{10})$ (R⁹ and R¹⁰ are the same or different and each is a hydrogen atom or an optionally substituted hydrocarbon group, or R⁹ and R¹⁰ are optionally bonded to form an optionally substituted ring), $-COR^{11}$ [R¹¹ is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, $-OR^{12}$ (R¹² is a hydrogen atom or an optionally substituted hydrocarbon group) or $-NR^{13}R^{14}$ (R¹³ and R¹⁴ are the same or different and each is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, an optionally substituted acyl group or an optionally substituted hydroxy group, or R¹³ and R¹⁴ are optionally bonded to form an optionally substituted ring)], an optionally substituted hydrocarbon group, or an optionally substituted heterocyclic group,

20

25

30

provided that

1) $-W-V-R^2$ is not $-Wa-(C=O)-R^a$ [Wa is a saturated

divalent hydrocarbon group having 1 to 20 carbon atoms and R^a is $-OR^b$ (R^b is a hydrogen atom or an optionally substituted hydrocarbon group) or $-NR^cR^d$ (R^c and R^d are the same or different and each is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group or an acyl group, and R^c and R^d are optionally bonded to form an optionally substituted ring together with the adjacent nitrogen atom)]",

- 2) ring A and ring B do not have a substituent represented by the formula: $-Wa-(C=O)-R^a$ (Wa and R^a are as defined above),
- 3) ring B does not have, on a ring-constituting N atom, a substituent represented by the formula:



wherein

R^{1a} is an optionally substituted hydrocarbon group or an optionally substituted heterocyclic group;

Xa and Ya

are the same or different and each is a bond, an oxygen atom, a sulfur atom, $-CO-$, $-CS-$, $-SO-$, $-SO_2-$, $-CR^{3a}(OR^{4a})-$, $-NR^{5a}-$, $-CONR^{6a}-$ or $-NR^{6a}CO-$ (R^{3a} is a hydrogen atom or an optionally substituted hydrocarbon group, R^{4a} is a hydrogen atom or a hydroxyl-protecting group, R^{5a} is a hydrogen atom, an optionally substituted hydrocarbon group or an amino-protecting group, R^{6a} is a hydrogen atom or an optionally substituted hydrocarbon group);

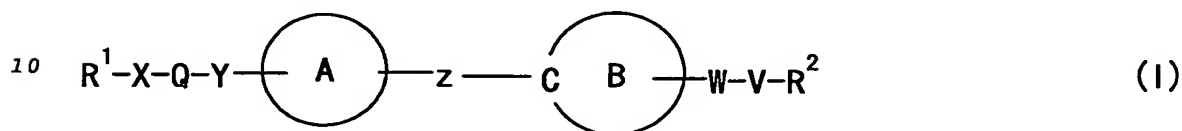
Qa is a divalent hydrocarbon group having 1 to 20

- carbon atoms;
ring Aa is an aromatic ring optionally further having
1 to 3 substituents;
na is an integer of 1 to 8; and
5 Yb is an oxygen atom, a sulfur atom or $-NR^{6a}-$ (R^{6a} is
as defined above),
4) $-X-Q-Y-$ is not $-(CH_2)_{na}-$ (na is an integer of 1 to 8),
5) when the nitrogen-containing heterocycle represented
by ring B is a pyridine ring, the ring B does not
10 have a further substituent, W is a divalent
hydrocarbon group having 1 to 20 carbon atoms, V
is a bond and R^2 is $-PO(OR^9)(OR^{10})$ or an optionally
substituted heterocyclic group,
6) when R^1 has a substituent represented by the formula:
15 $-Wa-(C=O)-R^a$ (Wa and R^a are as defined above), W is
a divalent hydrocarbon group having 1 to 20 carbon
atoms, V is a bond and R^2 is $-PO(OR^9)(OR^{10})$ or an
optionally substituted heterocyclic group,
or a salt thereof or a prodrug thereof.
20
17. The pharmaceutical composition of claim 16, which is
an agent for the prophylaxis or treatment of diabetes
mellitus.
25 18. The pharmaceutical composition of claim 16, which is
an agent for the prophylaxis or treatment of
hyperlipidemia.
19. The pharmaceutical composition of claim 16, which is
30 an agent for the prophylaxis or treatment of impaired
glucose tolerance.
20. The pharmaceutical composition of claim 16, which is
an agent for the prophylaxis or treatment of obesity.

21. The pharmaceutical composition of claim 16, which is an agent for the prophylaxis or treatment of hypertension.

5

22. A retinoid-related receptor function regulating agent, which comprises the compound represented by the formula:



wherein

R^1 is an optionally substituted 5-membered heterocyclic group;

X, Y and V

15 are the same or different and each is a bond, an oxygen atom, a sulfur atom, -CO-, -CS-, -SO-, -SO₂-, -CR³(OR⁴)-, -NR⁵-, -CONR⁶-, -NR⁶CO-, -CSNR⁶-, -NR⁶CS- or -CONR⁶NR⁷- (R^3 is a hydrogen atom or an optionally substituted hydrocarbon group, R^4 is a hydrogen atom or a hydroxyl-protecting group, R^5 is a hydrogen atom, an optionally substituted hydrocarbon group or an amino-protecting group, and R^6 and R^7 are the same or different and each is a hydrogen atom or an optionally substituted hydrocarbon group);

20 Q is a divalent hydrocarbon group having 1 to 20 carbon atoms;

25 ring A is an aromatic ring optionally further having 1 to 3 substituents;

30 Z is -(CH₂)_n-Z¹- or -Z¹-(CH₂)_n- (n is an integer of 0 to 8 and Z¹ is a bond, an oxygen atom, a sulfur atom, -CO-, -CS-, -SO-, -SO₂-, -NR⁸-, -CONR⁸-, -

$\text{NR}^8\text{CO-}$, $\text{-CSNR}^8\text{-}$ or $\text{-NR}^8\text{CS-}$ (R^8 is a hydrogen atom or an optionally substituted hydrocarbon group));
 ring B is a nitrogen-containing heterocycle optionally further having 1 to 3 substituents;
 5 W is a bond or a divalent hydrocarbon group having 1 to 20 carbon atoms; and
 R^2 is a hydrogen atom, a cyano group, $\text{-PO(OR}^9\text{)(OR}^{10}\text{)}$ (R^9 and R^{10} are the same or different and each is a hydrogen atom or an optionally substituted
 10 hydrocarbon group, or R^9 and R^{10} are optionally bonded to form an optionally substituted ring), -COR^{11} [R^{11} is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, -OR^{12} (R^{12} is a
 15 hydrogen atom or an optionally substituted hydrocarbon group) or $\text{-NR}^{13}\text{R}^{14}$ (R^{13} and R^{14} are the same or different and each is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, an
 20 optionally substituted acyl group or an optionally substituted hydroxy group, or R^{13} and R^{14} are optionally bonded to form an optionally substituted ring)], an optionally substituted hydrocarbon group, or an optionally substituted
 25 heterocyclic group,

provided that

- 1) -W-V-R^2 is not Wa-(C=O)-R^a [Wa is a saturated divalent hydrocarbon group having 1 to 20 carbon atoms and R^a is -OR^b (R^b is a hydrogen atom or an
 30 optionally substituted hydrocarbon group) or $\text{-NR}^c\text{R}^d$ (R^c and R^d are the same or different and each is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group or an acyl group, and R^c and R^d

are optionally bonded to form an optionally substituted ring together with the adjacent nitrogen atom)]",

2) ring A and ring B do not have a substituent

5 represented by the formula: $-W_a-(C=O)-R^a$ (W_a and R^a are as defined above),

3) ring B does not have, on a ring-constituting N atom, a substituent represented by the formula:



10 wherein

R^{1a} is an optionally substituted hydrocarbon group or an optionally substituted heterocyclic group;

X_a and Y_a

15 are the same or different and each is a bond, an oxygen atom, a sulfur atom, $-CO-$, $-CS-$, $-SO-$, $-SO_2-$, $-CR^{3a}(OR^{4a})-$, $-NR^{5a}-$, $-CONR^{6a}-$ or $-NR^{6a}CO-$ (R^{3a} is a hydrogen atom or an optionally substituted hydrocarbon group, R^{4a} is a hydrogen atom or a hydroxyl-protecting group, R^{5a} is a hydrogen atom, an optionally substituted hydrocarbon group or an amino-protecting group, R^{6a} is a hydrogen atom or an optionally substituted hydrocarbon group);

25 Q_a is a divalent hydrocarbon group having 1 to 20 carbon atoms;

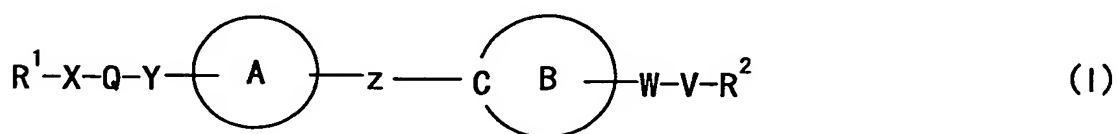
ring A_a is an aromatic ring optionally further having 1 to 3 substituents;

na is an integer of 1 to 8; and

30 Y_b is an oxygen atom, a sulfur atom or $-NR^{6a}-$ (R^{6a} is as defined above),

4) $-X-Q-Y-$ is not $-(CH_2)_{na}-$ (na is an integer of 1 to 8),

- 5) when the nitrogen-containing heterocycle represented by ring B is a pyridine ring, the ring B does not have a further substituent, W is a divalent hydrocarbon group having 1 to 20 carbon atoms, V is a bond and R² is -PO(OR⁹)(OR¹⁰) or an optionally substituted heterocyclic group,
- 6) when R¹ has a substituent represented by the formula:
 -Wa-(C=O)-R^a (Wa and R^a are as defined above), W is a divalent hydrocarbon group having 1 to 20 carbon atoms, V is a bond and R² is -PO(OR⁹)(OR¹⁰) or an optionally substituted heterocyclic group,
 or a salt thereof or a prodrug thereof.
23. The agent of claim 22, which is a peroxisome proliferator-activated receptor ligand.
24. The agent of claim 22, which is a retinoid X receptor ligand.
25. An agent for improving insulin resistance, which comprises the compound represented by the formula:



wherein

- R¹ is an optionally substituted 5-membered heterocyclic group;

X, Y and V

- are the same or different and each is a bond, an oxygen atom, a sulfur atom, -CO-, -CS-, -SO-, -SO₂-, -CR³(OR⁴)-, -NR⁵-, -CONR⁶-, -NR⁶CO-, -CSNR⁶-, -NR⁶CS- or -CONR⁶NR⁷- (R³ is a hydrogen atom or an optionally substituted hydrocarbon group, R⁴ is a

hydrogen atom or a hydroxyl-protecting group, R^5 is a hydrogen atom, an optionally substituted hydrocarbon group or an amino-protecting group, and R^6 and R^7 are the same or different and each is a hydrogen atom or an optionally substituted hydrocarbon group);

Q is a divalent hydrocarbon group having 1 to 20 carbon atoms;

ring A is an aromatic ring optionally further having 1 to 3 substituents;

Z is $-(CH_2)_n-Z^1-$ or $-Z^1-(CH_2)_n-$ (n is an integer of 0 to 8 and Z^1 is a bond, an oxygen atom, a sulfur atom, $-CO-$, $-CS-$, $-SO-$, $-SO_2-$, $-NR^8-$, $-CONR^8-$, $-NR^8CO-$, $-CSNR^8-$ or $-NR^8CS-$ (R^8 is a hydrogen atom or an optionally substituted hydrocarbon group));

ring B is a nitrogen-containing heterocycle optionally further having 1 to 3 substituents;

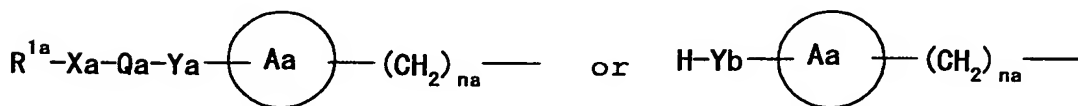
W is a bond or a divalent hydrocarbon group having 1 to 20 carbon atoms; and

R^2 is a hydrogen atom, a cyano group, $-PO(OR^9)(OR^{10})$ (R^9 and R^{10} are the same or different and each is a hydrogen atom or an optionally substituted hydrocarbon group, or R^9 and R^{10} are optionally bonded to form an optionally substituted ring), $-COR^{11}$ [R^{11} is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, $-OR^{12}$ (R^{12} is a hydrogen atom or an optionally substituted hydrocarbon group) or $-NR^{13}R^{14}$ (R^{13} and R^{14} are the same or different and each is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, an optionally substituted acyl group or an optionally substituted hydroxy group, or R^{13} and R^{14} are

optionally bonded to form an optionally substituted ring)], an optionally substituted hydrocarbon group, or an optionally substituted heterocyclic group,

5 provided that

- 1) $-W-V-R^2$ is not $-Wa-(C=O)-R^a$ [Wa is a saturated divalent hydrocarbon group having 1 to 20 carbon atoms and R^a is $-OR^b$ (R^b is a hydrogen atom or an optionally substituted hydrocarbon group) or $-NR^cR^d$ (10 R^c and R^d are the same or different and each is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group or an acyl group, and R^c and R^d are optionally bonded to form an optionally substituted ring together with the adjacent nitrogen atom)]",
- 15 2) ring A and ring B do not have a substituent represented by the formula: $-Wa-(C=O)-R^a$ (Wa and R^a are as defined above),
- 20 3) ring B does not have, on a ring-constituting N atom, a substituent represented by the formula:



wherein

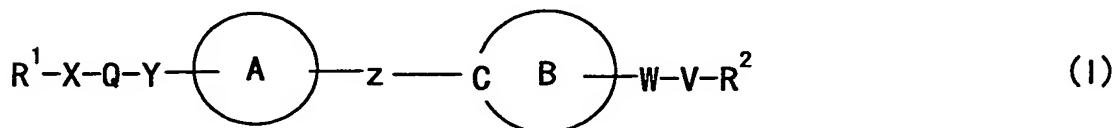
25 R^{1a} is an optionally substituted hydrocarbon group or an optionally substituted heterocyclic group;

Xa and Ya

are the same or different and each is a bond, an oxygen atom, a sulfur atom, $-CO-$, $-CS-$, $-SO-$, 30 $-SO_2-$, $-CR^{3a}(OR^{4a})-$, $-NR^{5a}-$, $-CONR^{6a}-$ or $-NR^{6a}CO-$ (R^{3a} is a hydrogen atom or an optionally substituted hydrocarbon group, R^{4a} is a hydrogen

- atom or a hydroxyl-protecting group, R^{5a} is a hydrogen atom, an optionally substituted hydrocarbon group or an amino-protecting group, R^{6a} is a hydrogen atom or an optionally substituted hydrocarbon group);
- Qa is a divalent hydrocarbon group having 1 to 20 carbon atoms;
- ring Aa is an aromatic ring optionally further having 1 to 3 substituents;
- na is an integer of 1 to 8; and
- Yb is an oxygen atom, a sulfur atom or $-NR^{6a}-$ (R^{6a} is as defined above),
- 4) $-X-Q-Y-$ is not $-(CH_2)_n-$ (n is an integer of 1 to 8),
- 5) when the nitrogen-containing heterocycle represented by ring B is a pyridine ring, the ring B does not have a further substituent, W is a divalent hydrocarbon group having 1 to 20 carbon atoms, V is a bond and R^2 is $-PO(OR^9)(OR^{10})$ or an optionally substituted heterocyclic group,
- 6) when R^1 has a substituent represented by the formula:
 $-W_a-(C=O)-R^a$ (W_a and R^a are as defined above), W is a divalent hydrocarbon group having 1 to 20 carbon atoms, V is a bond and R^2 is $-PO(OR^9)(OR^{10})$ or an optionally substituted heterocyclic group,
- or a salt thereof or a prodrug thereof.

26. A method for the prophylaxis or treatment of diabetes mellitus in a mammal, which comprises administering the compound represented by the formula:



wherein

R^1 is an optionally substituted 5-membered heterocyclic group;

X , Y and V

are the same or different and each is a bond, an oxygen atom, a sulfur atom, $-CO-$, $-CS-$, $-SO-$, $-SO_2-$, $-CR^3(OR^4)-$, $-NR^5-$, $-CONR^6-$, $-NR^6CO-$, $-CSNR^6-$, $-NR^6CS-$ or $-CONR^6NR^7-$ (R^3 is a hydrogen atom or an optionally substituted hydrocarbon group, R^4 is a hydrogen atom or a hydroxyl-protecting group, R^5 is a hydrogen atom, an optionally substituted hydrocarbon group or an amino-protecting group, and R^6 and R^7 are the same or different and each is a hydrogen atom or an optionally substituted hydrocarbon group);

Q is a divalent hydrocarbon group having 1 to 20 carbon atoms;

ring A is an aromatic ring optionally further having 1 to 3 substituents;

Z is $-(CH_2)_n-Z^1-$ or $-Z^1-(CH_2)_n-$ (n is an integer of 0 to 8 and Z^1 is a bond, an oxygen atom, a sulfur atom, $-CO-$, $-CS-$, $-SO-$, $-SO_2-$, $-NR^8-$, $-CONR^8-$, $-NR^8CO-$, $-CSNR^8-$ or $-NR^8CS-$ (R^8 is a hydrogen atom or an optionally substituted hydrocarbon group));

ring B is a nitrogen-containing heterocycle optionally further having 1 to 3 substituents;

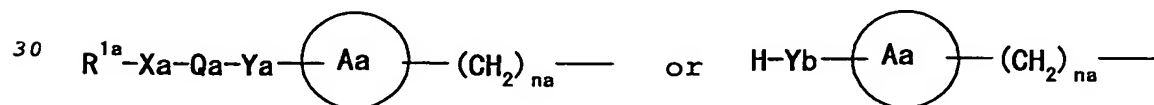
W is a bond or a divalent hydrocarbon group having 1 to 20 carbon atoms; and

R^2 is a hydrogen atom, a cyano group, $-PO(OR^9)(OR^{10})$ (R^9 and R^{10} are the same or different and each is a hydrogen atom or an optionally substituted hydrocarbon group, or R^9 and R^{10} are optionally bonded to form an optionally substituted ring), $-COR^{11}$ [R^{11} is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally

substituted heterocyclic group, $-OR^{12}$ (R^{12} is a hydrogen atom or an optionally substituted hydrocarbon group) or $-NR^{13}R^{14}$ (R^{13} and R^{14} are the same or different and each is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, an optionally substituted acyl group or an optionally substituted hydroxy group, or R^{13} and R^{14} are optionally bonded to form an optionally substituted ring)], an optionally substituted hydrocarbon group, or an optionally substituted heterocyclic group,

provided that

- 1) $-W-V-R^2$ is not $-Wa-(C=O)-R^a$ [Wa is a saturated divalent hydrocarbon group having 1 to 20 carbon atoms and R^a is $-OR^b$ (R^b is a hydrogen atom or an optionally substituted hydrocarbon group) or $-NR^cR^d$ (R^c and R^d are the same or different and each is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group or an acyl group, and R^c and R^d are optionally bonded to form an optionally substituted ring together with the adjacent nitrogen atom)],
- 2) ring A and ring B do not have a substituent represented by the formula: $-Wa-(C=O)-R^a$ (Wa and R^a are as defined above),
- 3) ring B does not have, on a ring-constituting N atom, a substituent represented by the formula:



wherein

R^{1a} is an optionally substituted hydrocarbon group

or an optionally substituted heterocyclic group;

Xa and Ya

are the same or different and each is a bond,
5 an oxygen atom, a sulfur atom, -CO-, -CS-, -SO-,
-SO₂-, -CR^{3a}(OR^{4a})-, -NR^{5a}-, -CONR^{6a}- or -NR^{6a}CO-
(R^{3a} is a hydrogen atom or an optionally
substituted hydrocarbon group, R^{4a} is a hydrogen
atom or a hydroxyl-protecting group, R^{5a} is a
10 hydrogen atom, an optionally substituted
hydrocarbon group or an amino-protecting group,
R^{6a} is a hydrogen atom or an optionally
substituted hydrocarbon group);

Qa is a divalent hydrocarbon group having 1 to 20
15 carbon atoms;

ring Aa is an aromatic ring optionally further having
1 to 3 substituents;

na is an integer of 1 to 8; and

Yb is an oxygen atom, a sulfur atom or -NR^{6a}- (R^{6a} is
20 as defined above),

4) -X-Q-Y- is not -(CH₂)_{na}- (na is an integer of 1 to 8),

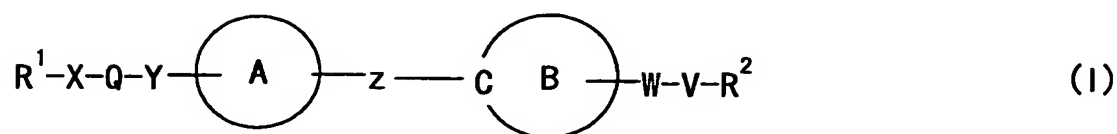
5) when the nitrogen-containing heterocycle represented
by ring B is a pyridine ring, the ring B does not
have a further substituent, W is a divalent

25 hydrocarbon group having 1 to 20 carbon atoms, V
is a bond and R² is -PO(OR⁹)(OR¹⁰) or an optionally
substituted heterocyclic group,

6) when R¹ has a substituent represented by the formula:
-Wa-(C=O)-R^a (Wa and R^a are as defined above), W is
30 a divalent hydrocarbon group having 1 to 20 carbon
atoms, V is a bond and R² is -PO(OR⁹)(OR¹⁰) or an
optionally substituted heterocyclic group,

or a salt thereof or a prodrug thereof to the mammal.

27. Use of the compound represented by the formula:



wherein

5 R^1 is an optionally substituted 5-membered heterocyclic group;

X, Y and V

are the same or different and each is a bond, an oxygen atom, a sulfur atom, -CO-, -CS-, -SO-, -SO₂-, -CR³(OR⁴)-, -NR⁵-, -CONR⁶-, -NR⁶CO-, -CSNR⁶-, -NR⁶CS- or -CONR⁶NR⁷- (R³ is a hydrogen atom or an optionally substituted hydrocarbon group, R⁴ is a hydrogen atom or a hydroxyl-protecting group, R⁵ is a hydrogen atom, an optionally substituted hydrocarbon group or an amino-protecting group, and R⁶ and R⁷ are the same or different and each is a hydrogen atom or an optionally substituted hydrocarbon group);

15 Q is a divalent hydrocarbon group having 1 to 20 carbon atoms;

20 ring A is an aromatic ring optionally further having 1 to 3 substituents;

Z is -(CH₂)_n-Z¹- or -Z¹-(CH₂)_n- (n is an integer of 0 to 8 and Z¹ is a bond, an oxygen atom, a sulfur atom, -CO-, -CS-, -SO-, -SO₂-, -NR⁸-, -CONR⁸-, -NR⁸CO-, -CSNR⁸- or -NR⁸CS- (R⁸ is a hydrogen atom or an optionally substituted hydrocarbon group));

25 ring B is a nitrogen-containing heterocycle optionally further having 1 to 3 substituents;

30 W is a bond or a divalent hydrocarbon group having 1 to 20 carbon atoms; and

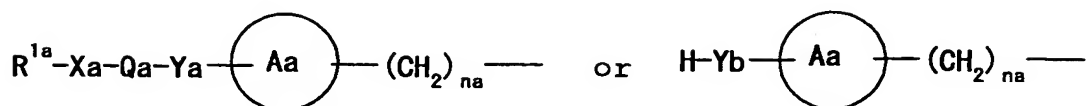
R² is a hydrogen atom, a cyano group, -PO(OR⁹)(OR¹⁰)

(R⁹ and R¹⁰ are the same or different and each is a hydrogen atom or an optionally substituted hydrocarbon group, or R⁹ and R¹⁰ are optionally bonded to form an optionally substituted ring), -COR¹¹ [R¹¹ is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, -OR¹² (R¹² is a hydrogen atom or an optionally substituted hydrocarbon group) or -NR¹³R¹⁴ (R¹³ and R¹⁴ are the same or different and each is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, an optionally substituted acyl group or an optionally substituted hydroxy group, or R¹³ and R¹⁴ are optionally bonded to form an optionally substituted ring)], an optionally substituted hydrocarbon group, or an optionally substituted heterocyclic group,

provided that

- 1) -W-V-R² is not "Wa-(C=O)-R^a [Wa is a saturated divalent hydrocarbon group having 1 to 20 carbon atoms and R^a is -OR^b (R^b is a hydrogen atom or an optionally substituted hydrocarbon group) or -NR^cR^d (R^c and R^d are the same or different and each is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group or an acyl group, and R^c and R^d are optionally bonded to form an optionally substituted ring together with the adjacent nitrogen atom)]",
- 2) ring A and ring B do not have a substituent represented by the formula: -Wa-(C=O)-R^a (Wa and R^a are as defined above),
- 3) ring B does not have, on a ring-constituting N atom,

a substituent represented by the formula:



wherein

R^{1a} is an optionally substituted hydrocarbon group
or an optionally substituted heterocyclic
group;

Xa and Ya

are the same or different and each is a bond,
an oxygen atom, a sulfur atom, $-CO-$, $-CS-$, $-SO-$,
 $-SO_2-$, $-CR^{3a}(OR^{4a})-$, $-NR^{5a}-$, $-CONR^{6a}-$ or $-NR^{6a}CO-$
(R^{3a} is a hydrogen atom or an optionally
substituted hydrocarbon group, R^{4a} is a hydrogen
atom or a hydroxyl-protecting group, R^{5a} is a
hydrogen atom, an optionally substituted
hydrocarbon group or an amino-protecting group,
 R^{6a} is a hydrogen atom or an optionally
substituted hydrocarbon group);

Qa is a divalent hydrocarbon group having 1 to 20
carbon atoms;

ring Aa is an aromatic ring optionally further having
1 to 3 substituents;

na is an integer of 1 to 8; and

Yb is an oxygen atom, a sulfur atom or $-NR^{6a}-$ (R^{6a} is
as defined above),

4) $-X-Q-Y-$ is not $-(CH_2)_{na}-$ (na is an integer of 1 to 8),

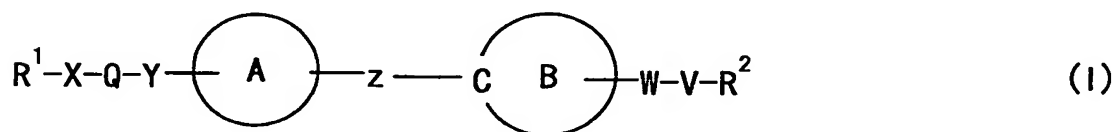
5) when the nitrogen-containing heterocycle represented
by ring B is a pyridine ring, the ring B does not
have a further substituent, W is a divalent
hydrocarbon group having 1 to 20 carbon atoms, V
is a bond and R^2 is $-PO(OR^9)(OR^{10})$ or an optionally
substituted heterocyclic group,

6) when R^1 has a substituent represented by the formula:

-Wa-(C=O)-R^a (Wa and R^a are as defined above), W is a divalent hydrocarbon group having 1 to 20 carbon atoms, V is a bond and R² is -PO(OR⁹)(OR¹⁰) or an optionally substituted heterocyclic group,

5 or a salt thereof or a prodrug thereof for the production of an agent for the prophylaxis or treatment of diabetes mellitus.

28. A method for the prophylaxis or treatment of obesity
10 in a mammal, which comprises administering the compound represented by the formula:



wherein

15 R¹ is an optionally substituted 5-membered heterocyclic group;

X, Y and V

are the same or different and each is a bond, an oxygen atom, a sulfur atom, -CO-, -CS-, -SO-, -SO₂-, -CR³(OR⁴)-, -NR⁵-, -CONR⁶-, -NR⁶CO-, -CSNR⁶-, -NR⁶CS- or -CONR⁶NR⁷- (R³ is a hydrogen atom or an optionally substituted hydrocarbon group, R⁴ is a hydrogen atom or a hydroxyl-protecting group, R⁵ is a hydrogen atom, an optionally substituted
20 hydrocarbon group or an amino-protecting group, and R⁶ and R⁷ are the same or different and each is a hydrogen atom or an optionally substituted hydrocarbon group);

Q is a divalent hydrocarbon group having 1 to 20
30 carbon atoms;

ring A is an aromatic ring optionally further having 1 to 3 substituents;

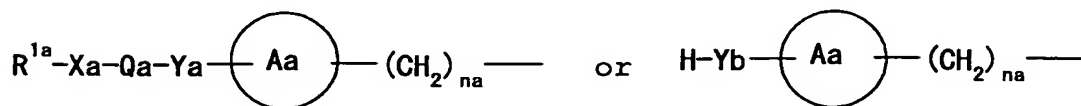
Z is $-(CH_2)_n-Z^1-$ or $-Z^1-(CH_2)_n-$ (n is an integer of 0 to 8 and Z^1 is a bond, an oxygen atom, a sulfur atom, $-CO-$, $-CS-$, $-SO-$, $-SO_2-$, $-NR^8-$, $-CONR^8-$, $-NR^8CO-$, $-CSNR^8-$ or $-NR^8CS-$ (R^8 is a hydrogen atom or an optionally substituted hydrocarbon group));
 ring B is a nitrogen-containing heterocycle optionally further having 1 to 3 substituents;
 W is a bond or a divalent hydrocarbon group having 1 to 20 carbon atoms; and
 10 R^2 is a hydrogen atom, a cyano group, $-PO(OR^9)(OR^{10})$ (R^9 and R^{10} are the same or different and each is a hydrogen atom or an optionally substituted hydrocarbon group, or R^9 and R^{10} are optionally bonded to form an optionally substituted ring), $-COR^{11}$ [R^{11} is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, $-OR^{12}$ (R^{12} is a hydrogen atom or an optionally substituted hydrocarbon group) or $-NR^{13}R^{14}$ (R^{13} and R^{14} are the same or different and each is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, an optionally substituted acyl group or an optionally substituted hydroxy group, or R^{13} and R^{14} are optionally bonded to form an optionally substituted ring)], an optionally substituted hydrocarbon group, or an optionally substituted heterocyclic group,

provided that

30 1) $-W-V-R^2$ is not $-Wa-(C=O)-R^a$ [Wa is a saturated divalent hydrocarbon group having 1 to 20 carbon atoms and R^a is $-OR^b$ (R^b is a hydrogen atom or an optionally substituted hydrocarbon group) or $-NR^cR^d$ (R^c and R^d are the same or different and each is a

hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group or an acyl group, and R^c and R^d are optionally bonded to form an optionally substituted ring together with the adjacent nitrogen atom)]",

- 2) ring A and ring B do not have a substituent represented by the formula: -Wa-(C=O)-R^a (Wa and R^a are as defined above),
- 3) ring B does not have, on a ring-constituting N atom, a substituent represented by the formula:



wherein

R^{1a} is an optionally substituted hydrocarbon group or an optionally substituted heterocyclic group;

Xa and Ya

are the same or different and each is a bond, an oxygen atom, a sulfur atom, -CO-, -CS-, -SO-, -SO₂-, -CR^{3a}(OR^{4a})-, -NR^{5a}-, -CONR^{6a}- or -NR^{6a}CO- (R^{3a} is a hydrogen atom or an optionally substituted hydrocarbon group, R^{4a} is a hydrogen atom or a hydroxyl-protecting group, R^{5a} is a hydrogen atom, an optionally substituted hydrocarbon group or an amino-protecting group, R^{6a} is a hydrogen atom or an optionally substituted hydrocarbon group);

Qa is a divalent hydrocarbon group having 1 to 20 carbon atoms;

ring Aa is an aromatic ring optionally further having 1 to 3 substituents;

na is an integer of 1 to 8; and

Yb is an oxygen atom, a sulfur atom or $-NR^{6a}-$ (R^{6a} is as defined above),

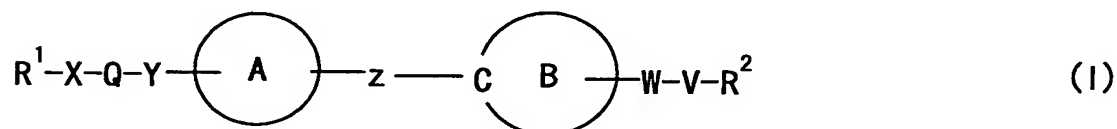
4) $-X-Q-Y-$ is not $-(CH_2)_{na}-$ (na is an integer of 1 to 8),

5) when the nitrogen-containing heterocycle represented by ring B is a pyridine ring, the ring B does not have a further substituent, W is a divalent hydrocarbon group having 1 to 20 carbon atoms, V is a bond and R^2 is $-PO(OR^9)(OR^{10})$ or an optionally substituted heterocyclic group,

6) when R^1 has a substituent represented by the formula:
 $-Wa-(C=O)-R^a$ (Wa and R^a are as defined above), W is a divalent hydrocarbon group having 1 to 20 carbon atoms, V is a bond and R^2 is $-PO(OR^9)(OR^{10})$ or an optionally substituted heterocyclic group,

or a salt thereof or a prodrug thereof to the mammal.

29. Use of the compound represented by the formula:



wherein

R^1 is an optionally substituted 5-membered heterocyclic group;

X, Y and V

are the same or different and each is a bond, an oxygen atom, a sulfur atom, $-CO-$, $-CS-$, $-SO-$, $-SO_2-$, $-CR^3(OR^4)-$, $-NR^5-$, $-CONR^6-$, $-NR^6CO-$, $-CSNR^6-$, $-NR^6CS-$ or $-CONR^6NR^7-$ (R^3 is a hydrogen atom or an optionally substituted hydrocarbon group, R^4 is a hydrogen atom or a hydroxyl-protecting group, R^5 is a hydrogen atom, an optionally substituted hydrocarbon group or an amino-protecting group, and R^6 and R^7 are the same or different and each is

a hydrogen atom or an optionally substituted hydrocarbon group);

Q is a divalent hydrocarbon group having 1 to 20 carbon atoms;

5 ring A is an aromatic ring optionally further having 1 to 3 substituents;

Z is $-(CH_2)_n-Z^1-$ or $-Z^1-(CH_2)_n-$ (n is an integer of 0 to 8 and Z^1 is a bond, an oxygen atom, a sulfur atom, $-CO-$, $-CS-$, $-SO-$, $-SO_2-$, $-NR^8-$, $-CONR^8-$, $-NR^8CO-$, $-CSNR^8-$ or $-NR^8CS-$ (R^8 is a hydrogen atom or an optionally substituted hydrocarbon group));

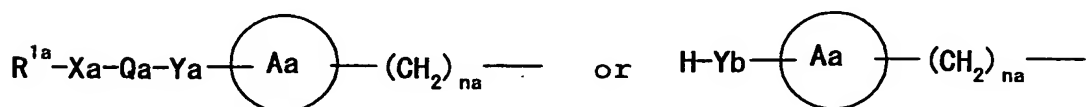
ring B is a nitrogen-containing heterocycle optionally further having 1 to 3 substituents;

W is a bond or a divalent hydrocarbon group having 1 to 20 carbon atoms; and

15 R^2 is a hydrogen atom, a cyano group, $-PO(OR^9)(OR^{10})$ (R^9 and R^{10} are the same or different and each is a hydrogen atom or an optionally substituted hydrocarbon group, or R^9 and R^{10} are optionally bonded to form an optionally substituted ring), $-COR^{11}$ [R^{11} is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, $-OR^{12}$ (R^{12} is a hydrogen atom or an optionally substituted hydrocarbon group) or $-NR^{13}R^{14}$ (R^{13} and R^{14} are the same or different and each is a hydrogen atom, an optionally substituted hydrocarbon group, an optionally substituted heterocyclic group, an optionally substituted acyl group or an optionally substituted hydroxy group, or R^{13} and R^{14} are optionally bonded to form an optionally substituted ring)], an optionally substituted hydrocarbon group, or an optionally substituted heterocyclic group,

provided that

- 1) $-W-V-R^2$ is not $-Wa-(C=O)-R^a$ [Wa is a saturated
divalent hydrocarbon group having 1 to 20 carbon
atoms and R^a is $-OR^b$ (R^b is a hydrogen atom or an
optionally substituted hydrocarbon group) or $-NR^cR^d$
(R^c and R^d are the same or different and each is a
hydrogen atom, an optionally substituted
hydrocarbon group, an optionally substituted
heterocyclic group or an acyl group, and R^c and R^d
are optionally bonded to form an optionally
substituted ring together with the adjacent
nitrogen atom)]",
- 2) ring A and ring B do not have a substituent
represented by the formula: $-Wa-(C=O)-R^a$ (Wa and R^a
are as defined above),
- 3) ring B does not have, on a ring-constituting N atom,
a substituent represented by the formula:



wherein

R^{1a} is an optionally substituted hydrocarbon group
or an optionally substituted heterocyclic
group;

Xa and Ya

are the same or different and each is a bond,
an oxygen atom, a sulfur atom, $-CO-$, $-CS-$, $-SO-$,
 $-SO_2-$, $-CR^{3a}(OR^{4a})-$, $-NR^{5a}-$, $-CONR^{6a}-$ or $-NR^{6a}CO-$
(R^{3a} is a hydrogen atom or an optionally
substituted hydrocarbon group, R^{4a} is a hydrogen
atom or a hydroxyl-protecting group, R^{5a} is a
hydrogen atom, an optionally substituted
hydrocarbon group or an amino-protecting group,
 R^{6a} is a hydrogen atom or an optionally

substituted hydrocarbon group);
Qa is a divalent hydrocarbon group having 1 to 20
carbon atoms;
ring Aa is an aromatic ring optionally further having
5 1 to 3 substituents;
na is an integer of 1 to 8; and
Yb is an oxygen atom, a sulfur atom or $-NR^{6a}-$ (R^{6a} is
as defined above),
4) $-X-Q-Y-$ is not $-(CH_2)_n-$ (na is an integer of 1 to 8),
10 5) when the nitrogen-containing heterocycle represented
by ring B is a pyridine ring, the ring B does not
have a further substituent, W is a divalent
hydrocarbon group having 1 to 20 carbon atoms, V
is a bond and R^2 is $-PO(OR^9)(OR^{10})$ or an optionally
15 substituted heterocyclic group,
6) when R^1 has a substituent represented by the formula:
 $-Wa-(C=O)-R^a$ (Wa and R^a are as defined above), W is
a divalent hydrocarbon group having 1 to 20 carbon
atoms, V is a bond and R^2 is $-PO(OR^9)(OR^{10})$ or an
20 optionally substituted heterocyclic group,
or a salt thereof or a prodrug thereof for the
production of an agent for the prophylaxis or treatment
of obesity.

25